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**Notes:**

1. Untranslatable words are replaced with asterisks (\* \* \*).
2. Texts in the figures are not translated and shown as it is.

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### [Claim(s)]

[Claim 1] (A) The insect proof resin composition which has the durability of the insect control operation relatively characterized by containing the ethylene system polymer 10 or 400 weight parts and (C) pyrethroid system insecticide 0.3, or 15 weight parts of high translatability on the olefin system polymer 100 weight part of low translatability, and (B) relative target.

[Claim 2] The insect proof resin composition according to claim 1 whose olefin system polymer (A) of low translatability is high density polyethylene, medium density polyethylene, or a polypropylene system polymer relatively.

[Claim 3] The insect proof resin composition according to claim 2 which is the polypropylene system polymer chosen from the group to which a polypropylene system polymer changes from a homopolymer, random Como Pori Maher, and Brock Como Pori Maher.

[Claim 4] An insect proof resin composition given in any of the Claims 1-3 whose ethylene system polymer of high translatability is low density polyethylene, normal chain-like low density polyethylene, or an ethylene system copolymer relatively they are.

[Claim 5] The insect proof resin composition according to claim 1 whose ethylene system polymer (B) of high translatability the olefin system polymer (A) of low translatability is high density polyethylene relatively, and is low density polyethylene relatively.

[Claim 6] The insect proof resin composition according to claim 1 whose ethylene system polymer (B) of high translatability the olefin system polymer (A) of low translatability is a crystalline polypropylene system polymer relatively, and is low density polyethylene relatively.

[Claim 7] The insect control resin Plastic solid which can control the durability of the insect control operation characterized by consisting of a constituent given in any of Claims 1-5 they are.

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### [Detailed Description of the Invention]

#### [0001]

[Industrial Application] In this invention, it is related with the olefin system insect proof resin composition which has durability, and its Plastic solid. In detail Therefore, the box and dresser with sink of a cookroom machine, the housing material of an electric device,

The cockroach to an automatic vending machine, a flooring material, a wall material, ceiling material, etc., Ali, the centipede, a chironomid, It is related with the olefin system insect proof resin composition which has the durability which used the pyrethroid system for preventing penetration of a termite etc. or preventing penetration of the clothes moth to the storage case of clothing, a wardrobe, etc., and a carpet beetle as the principal component, and its Plastic solid.

[0002]

[Description of the Prior Art] The development of mold is promoted by change of a housing style and the development of a vermin is increasing now. Although use of the aerosol, the fumigant and poison bait which used the insecticide, a capture machine, etc. is generally conventionally carried out to the measure against such damage, the durability of an effect is long and as inadequate as about one year.

[0003] Although microencapsulation of the insecticide is carried out, improvement in durability is aimed at or the method of making polyethylene and polypropylene contain an insecticide is taken as the treatment method for giving the durability of insect control nature When an effect is discovered by a medically important insect, flying vermin, unpleasant vermin, and clothing vermin etc. with durability, an effect is inadequate or it has the fault that the durability of an effect is short. Being attached furthermore to a cost overrun was also a problem.

[0004] Moreover, an organic phosphorus system insecticide has a problem in safety, and is regarded as questionable also to the termite.

[0005]

[Problem(s) to be Solved by the Invention] Then, as a result of inquiring in order to solve the short fault of the inadequate nature of the effect which the Prior art has, or durability, when a pyrethroid system insecticide is blended combining two or more sorts of olefin system polymers, it is, The durability of the insect control operation over a vermin could be controlled, and it found out that the durability of an insect control operation was moreover acquired over a long period of time.

[0006] That is, the purpose of this invention can control the durability of the insect control operation over a vermin, has the durability of an insect control operation over a long period of time, and is to offer the insect proof resin composition which was moreover excellent in weatherability, and its Plastic solid.

[0007]

[Means for Solving the Problem] according to this invention -- (A) -- relative -- the olefin system polymer 100 weight part of low translatability, and (B) -- relative -- the ethylene system polymer 10 or 400 weight parts and (C) pyrethroid system insecticide 0.3, or 15 weight parts of high translatability The Plastic solid which consists of the insect proof resin composition which has the durability of the insect control operation characterized by containing, and this resin composition thing is offered.

[0008]

[Function] this invention -- (A) -- relative -- the olefin system polymer 100 weight part of low translatability, and (B) -- it is the feature to have combined the ethylene system polymer 10 or 400 weight parts of high translatability relatively, and to have made this combination contain (C) pyrethroid system insecticide 0.3 or 15 weight parts.

[0009] By using the combination of the above-mentioned olefin system polymer, as compared with the case where independent [ of an olefin system polymer ] is used, the

durability of the insect control operation over a vermin can be controlled, an insect control operation can be made to be able to maintain over a long period of time, and, moreover, weatherability can be raised notably.

[0010] Please refer to Table 1 mentioned later. When a pyrethroid system insecticide is blended with an olefin system polymer independent, there are some which the thing of an insect control operation which is remarkably inferior also has, and show insect control operation (high knockdown rate) comparatively sufficient by short-time use, but it belongs to this latter. After \*\*\*\*\* (accelerated test for 60 degree-Cx six months), an insect control operation falls remarkably.

[0011] on the other hand, (A) -- relative -- the olefin system polymer of low translatability, and (B) -- while the constituent which used combination with the ethylene system polymer of high translatability relatively, and blended the pyrethroid system insecticide with this combination shows insect control operation comparatively sufficient natural by short-time use The insect control operation almost same also after a weathering test as the first stage is shown, and it is clear this constituent's to excel also in weatherability notably not to mention the durability of an insect control operation.

[0012] It is based on the phenomenon which the compounding agent blended with shift (migration), i.e., plasticization plastics, moves to the direction (surface) of low concentration from the high concentration side within a compound that an insect control operation is generally discovered by the insecticide blended into the resin Plastic solid. The grade which this shift phenomenon generates relates also to character, such as the compatibility of plastics and a compounding agent.

[0013] When a pyrethroid system insecticide is relatively blended with the olefin system polymer of low translatability, Since saying that an insect control operation is shown has very little shift of an insecticide, the outstanding insect control operation is shown in early stages of an insect control operation when a pyrethroid system insecticide is relatively blended with the ethylene system polymer of high translatability on the other hand, but shift of an insecticide is too early not much If a pyrethroid system insecticide is blended with the combination of both these resin in this invention to the durability of an insect control operation being missing the above -- the insect control operation after a weathering test improves by leaps and bounds, and it seems that this has given the insect control operation the decentralized structure of both resin controlled and excelled [ operation ] shift of a pyrethroid system insecticide in the optimal range, and its durability rather than predicted from which case.

[0014] Set to this invention. (A) if it is also important to use the ethylene system polymer of high translatability by the above-mentioned quantitative ratio at the olefin system polymer and (B) relative target of low translatability and (B) relative target has less content of the ethylene system polymer of high translatability relatively than the above-mentioned range The level of an insect control operation itself becomes low, and on the other hand, when more than the above-mentioned range, the trend for durability and weatherability to fall is to an insect control operation.

[0015] In this invention, a pyrethroid system insecticide is used as an insecticide, Although this thing is because it has excelling in the combination of the safety and the insect control operation to men and beasts, the kneading nature to an olefin system polymer, and moderate translatability, when blending by the above-mentioned quantitative ratio, the outstanding insect control operation and durability are acquired.

That is, when less than the above-mentioned range, there is a trend for an insect control operation and its durability to fall considerably as compared with this invention, an effect top does not have [ on the other hand, if more than the above-mentioned range, the physical properties of a resin composition thing will fall, or ] an exceptional advantage, either, and it is economically disadvantageous.

[0016]

[Best Mode of Carrying Out the Invention] In this invention, it is an olefin system polymer (A) of low translatability relatively, High density polyethylene (HDPE), medium density polyethylene (MDPE), or a polypropylene system polymer is used suitably, and here as a polypropylene system polymer Crystalline polypropylene system polymers, such as a homopolymer, random Como Pori Maher, and Brock Como Pori Maher, are used.

[0017] On the other hand, it is an ethylene system polymer of high translatability relatively, Low density polyethylene (LDPE), normal chain-like low density polyethylene (LLDPE), or an ethylene system copolymer is used suitably, and here as an ethylene system copolymer An ethylene-vinylacetate copolymer, an ethylene acrylic acid copolymer, an ionomer (ion bridge formation ethylene copolymer), an ethylene-propylene copolymer, an ethylene butene copolymer, etc. are used.

[0018] The combination of the resin which has moderate compatibility and takes decentralized structures, such as what is called a sea-island or stratified distribution, is . For example, the combination whose ethylene system polymer (B) of high translatability the olefin system polymer (A) of low translatability is high density polyethylene relatively, and is low density polyethylene relatively, The combination whose ethylene system polymer (B) of high translatability the olefin system polymer (A) of low translatability is a crystalline polypropylene system polymer relatively, and is low density polyethylene relatively is desirable.

[0019] As a pyrethroid system insecticide (C) \*\*, TERARE thorin, pyrethrin, allethrin, PURARE thorin, FURAME thorin, Resmethrin, PIRESUME thorin, FENO thorin, permethrin, bifenthrin, SHIFENO thorin, Shahr Trun, Dell Tamet Lynn, TORAROME thorin, EMPEN thorin, lid RUSURIN, fenvalerate, SAIPAME thorin, It is used in that at least one sort of pyrethroid system compounds chosen from the group which consists of cyphenothrin, etofenprox, full FEMPU locks, full proxy Foehn, and silafluofen are independent, or two or more sorts of combination.

[0020] (A) Receive the olefin system polymer 100 weight part of low translatability relatively, (B) it is relatively good 10 or 400 weight parts, and to use the ethylene system polymer of high translatability in the quantity of 30 or 300 weight parts especially -- (B) - - the durability of an insect control operation is controllable by changing the combination weight part of the ethylene system polymer of high translatability relatively. That is, what migration per unit time of a pyrethroid system insecticide is increased for (it lessens) is made by what the loadings of the (B) component are increased for (it lessens).

[0021] (C) The quantity of a pyrethroid system insecticide is good 0.3 or 15 weight parts especially 0.5, or to carry out 8 weight part combination to 100 weight parts of (A).

[0022] As long as a pyrethroid system insecticide exists in the method of combination of a pyrethroid system insecticide at the time of kneading of resin, there is no restriction, for example, it may blend with resin of both (A) and (B) simultaneously, or you may blend with one resin beforehand. Of course, the masterbatch which blended the pyrethroid

system insecticide by high concentration is prepared beforehand, and combination kneading can be carried out with the resin this masterbatch of whose is not blended. [0023] In the resin composition thing of this invention, other additives, for example, inorganic fillers, a neutralizer, an antioxidant, an ultraviolet ray absorbent, an antistatic agent, a nucleus agent, a pigment, a dispersant, peroxide, etc. can be added if needed. [0024] Moreover, shaping of extrusion, inflation SHON shaping, injection molding, blow molding, press forming, etc. is possible for the resin composition thing of this invention, and it is useful as the component parts, such as the box of a cookroom machine, a dresser with sink, the housing material of an electric device, a flooring material, a wall material, ceiling material, a storage case of clothing, and a wardrobe, or a member.

[0025] Although a work example explains this invention concretely below, this invention is not limited to these work examples.

[0026] It is a pyrethroid system insecticide (made by etofenprox Mitsui Toatsu Chemicals) 1 weight part to a work-example 1 high-density-polyethylene 30 weight part (product made from high ZEKKUSU 3300F Mitsui petrochemistry), and a low-density-polyethylene 70 weight part (product made from Myra Son 12 Mitsui petrochemistry). Inflation molding of the 0.13-mm-thick film was carried out for the included constituent.

[0027] It is a pyrethroid system insecticide (made by etofenprox Mitsui Toatsu Chemicals) 1 weight part to a work-example 2 high-density-polyethylene 50 weight part (product made from high ZEKKUSU 3300F Mitsui petrochemistry), and a low-density-polyethylene 50 weight part (product made from Myra Son 12 Mitsui petrochemistry). Inflation molding of the 0.13-mm-thick film was carried out for the included constituent.

[0028] It is a pyrethroid system insecticide (made by etofenprox Mitsui Toatsu Chemicals) 1 weight part to a work-example 3 high-density-polyethylene 70 weight part (product made from high ZEKKUSU 3300F Mitsui petrochemistry), and a low-density-polyethylene 30 weight part (product made from Myra Son 12 Mitsui petrochemistry). Inflation molding of the 0.13-mm-thick film was carried out for the included constituent.

[0029] It is a pyrethroid system insecticide (made by allethrin Sumitomo Chemical) 1 weight part to a work-example 4 high-density-polyethylene 50 weight part (product made from high ZEKKUSU 5000S Mitsui petrochemistry), and a low-density-polyethylene 50 weight part (product made from Myra Son 50 Mitsui petrochemistry). Extrusion of the included constituent was carried out to the 1.0-mm-thick sheet.

[0030] It is a pyrethroid system insecticide (made by allethrin Sumitomo Chemical) 1 weight part to the polypropylene 50 weight part (yes, product made from pole F301 Mitsui petrochemistry) of work-example 5 crystallinity, and a low-density-polyethylene 50 weight part (product made from Myra Son 50 Mitsui petrochemistry). Extrusion of the included constituent was carried out to the 1.0-mm-thick sheet.

[0031] Inflation molding of the 0.13-mm-thick film was carried out for the constituent containing the polypropylene 100 weight part (yes, product made from pole F301 Mitsui petrochemistry) of comparative example 1 crystallinity, and a pyrethroid system insecticide (made by etofenprox Mitsui Toatsu Chemicals) 1 weight part.

[0032] Inflation molding of the 0.13-mm-thick film was carried out for the constituent containing a comparative example 2 low-density-polyethylene 100 weight part (product made from Myra Son 50 Mitsui petrochemistry), and a pyrethroid system insecticide (made by etofenprox Mitsui Toatsu Chemicals) 1 weight part.

[0033] Extrusion of the constituent containing a comparative example 3 low-density-

polyethylene 100 weight part (product made from Myra Son 50 Mitsui petrochemistry) and a pyrethroid system insecticide (made by allethrin Sumitomo Chemical) 1 weight part was carried out to the 1.0-mm-thick sheet.

[0034] Inflation molding of the 0.13-mm-thick film was carried out for the constituent containing a comparative example 4 high-density-polyethylene 50 weight part (product made from high ZEKKUSU 3300F Mitsui petrochemistry), and a low-density-polyethylene 50 weight part (product made from Myra Son 12 Mitsui petrochemistry).

[0035] \* The insect control effect was evaluated about the sheet and film which were obtained by the effect nature work examples 1-5 and comparative examples 1-4 over a cockroach. The method investigated aging of the knockdown rate when putting in five *Blattella germanica* sexes each in the 9cm beaker in diameter, and contacting them on the above-mentioned sheet and a film directly. The examination followed the specimen for six months which carried out weathering treatment just behind manufacture and under 60 degrees C. The result is shown in Table 1.

[0036]

$$\text{ノックダウン率（%）} = \frac{\text{ノックダウン頭数}}{\text{全ゴキブリ頭数}}$$

[0037] Crystalline polypropylene having an initial effect lower than the result of a comparative example, and an effect seldom changing after weathering treatment, and not having a practical effect is found. Furthermore, in the case of low density polyethylene, although an initial effect is high, it is found that durability is short. On the other hand, in the work example, the initial effect has a practical effect after weathering treatment highly, and it became clear that durability was high. Furthermore, by changing the ratio of an olefin system polymer showed that durability was controllable according to a use.

[0038]

[Table 1]

ノックダウン率

試験体	耐候処理	ノックダウン率(%)								
		2	5	12	24	48	72	96	(hr)	
実 施 例	1	無	20	30	40	60	70	90	100	←
		60°C × 6ヶ月	10	30	30	50	70	70	90	100
	2	無	20	40	40	60	80	80	100	←
		60°C × 6ヶ月	20	40	40	60	70	80	70	90
	3	無	10	30	30	40	60	70	90	100
		60°C × 6ヶ月	0	10	30	30	60	80	80	90
	4	無	0	10	20	40	40	60	60	80
		60°C × 6ヶ月	0	0	20	30	30	50	60	60
	5	無	0	10	30	30	40	40	60	70
		60°C × 6ヶ月	0	0	20	20	40	20	50	60
比 較 例	1	無	0	0	10	10	10	20	20	30
		60°C × 6ヶ月	0	0	10	20	30	30	40	40
	2	無	20	30	50	70	80	100	←	←
		60°C × 6ヶ月	0	0	0	10	10	30	30	30
	3	無	10	20	40	60	80	80	80	80
		60°C × 6ヶ月	0	0	0	10	10	10	20	20
	4	無	0	0	0	0	0	0	0	10
		60°C × 6ヶ月	0	0	0	0	0	0	0	0

[0039]

[Effect of the Invention] this invention -- (A) -- relative -- the olefin system polymer 100 weight part of low translatability, and (B) -- the ethylene system polymer 10 or 400 weight parts of high translatability were combined relatively, and this combination was made to contain (C) pyrethroid system insecticide 0.3 or 15 weight parts Therefore, as compared with the case where independent [ of an olefin system polymer ] is used, the durability of the insect control operation over a vermin can be controlled, an insect control operation can be made to be able to maintain over a long period of time, and, moreover, weatherability can be raised notably.

[Translation done.]